Date: Sun, 6 Mar 94 04:30:16 PST
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #56
To: Ham-Ant

Ham-Ant Digest   Sun, 6 Mar 94   Volume 94 : Issue   56

Today's Topics:

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

Date: Fri, 4 Mar 1994 06:51:50 GMT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!usenet.ins.cwru.edu!ncoast!
nshore!seastar!paulg@network.ucsd.edu
Subject: Getting Coax Seal OFF?
To: ham-ant@ucsd.edu

woodj@apollo.robins.af.mil writes:

> In article <ericr.762116748@access3>, ericr@access3.digex.net (Eric Rosenberg
> >
> > Can anyone suggest a decent method for taking Coax Seal *off* of a
> > connector? It's a mess, and I'm not sure how to do it.
> >
> > Please email your repsonses...
> >
> > Thanks --
> > Eric
> >

> >
> > --
> > Eric Rosenberg   WD3Q, EI4VPS, ZL0ADG, J20BY, etc.
> > 338 14th Street, NE   voice: +202-547-3441
> > Washington, DC 20002 USA fax: +202-547-3613
> > ericr@access.digex.com   wd3q@amsat.org
> >
>
> I think WD40(tm) will cut it. I don't know know what would be a good cleaner
> to remove the WD40...   Jim KA4GHX

Try Dawn diswashing detergent. THE ** BEST ** non-poluting degreaser
around. Rinse with plenty of tap water and allow to air dry.

Date: 5 Mar 94 03:59:55 GMT
From: nprdc!ihnp4.ucsd.edu!usc!math.ohio-state.edu!sol.ctr.columbia.edu!
news.kei.com!hookup!news.sprintlink.net!connected.com!beauty!rwing!eskimo!
bobw@network.ucsd.edu
Subject: Getting Coax Seal OFF?
To: ham-ant@ucsd.edu

Before I "coax-seal" a joint, I wrap the connector with one layer of
black electrical tape then cover that with Coax-seal taking care to extend
the coax-seal past the electrical tape. This way, if you use quality
electrical tape, the only coax-seal to remove is the bit on the coax and the
base of the connector as the rest is discarded with the tape. (Cheap tape
leaves a gooey residue).

-- Bob W.
N7UMU

Date: 4 Mar 1994 05:39:07 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!torn!nott!uotcsi2!
hassan@network.ucsd.edu
Subject: MFJ SWR Analyzers
To: ham-ant@ucsd.edu

Doug Braun (dbraun@scdtintel.com) wrote:
: In article <1994Mar1.162350.22173@ke4zv.atl.ga.us>, gary@ke4zv.atl.ga.us (Gary
Coffman) writes:
:
: |> No. This only works if the antenna feed point impedance approaches
: |> the characteristic impedance of the coax most closely at resonance.

: |> That's roughly true for dipoles, but not for some other types of
: |> antennas. For example, a 1/4-wave monopole has a feed point impedance
: |> at resonance of about 36 ohms. At either side of resonance, the
: |> impedance (complex) increases. So there are two points where the
: |> impedance will be closer to 50 ohms than the resonant point.

: Although the impedance may be closer to 50 ohms, the SWR will
: INCREASE. Adding reactive impedance to a resistive load
: will NEVER decrease the SWR. Although the total impedance value
: may be closer to 50 ohms, the reactive-ness will just make the SWR worse.
: Stare at a Smith chart, and you will see this.

You are right in your statements but you are wrongly assuming that
the load is purely resistive. At least I know for monopoles and
dipoles it is rarely so over a broad range of frequencies. Feed
point impedance is complex and has both resistive and reactive
components. Cancelling the reactive part is one way of improving the
SWR but not necessarily to that of 1:1. SWR tuners do more than
cancelling the reactive part to make SWR of 1:1.

I'm very new in this field but I hope my explanation is O.K, :-)

hassan <<hassan@aix1.uottawa.ca>>

Date: Fri, 4 Mar 1994 17:22:36 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!usc!elroy.jpl.nasa.gov!
news.msfc.nasa.gov!europa.eng.gtefsd.com!howland.reston.ans.net!math.ohio-
state.edu!sdd.hp.com!hp-cv!@@ihnp4.ucsd.edu
Subject: MFJ SWR Analyzers
To: ham-ant@ucsd.edu

Smitty, NA5K, (henrys@netcom.com) wrote:

: A general question: Can you dependably determine the resonance of an
: antenna by looking for the lowest SWR?

To which there has been quite a bit of discussion. I already posted a
to-the-point observation about that, but here's some more food for
thought:

Why do you necessarily _want_ to operate an antenna at resonance?

Case-in-point: consider a nominally 1/4 wave radiator above perfect
ground, something that can be approached at least with a good ground
radial system or a ground plane of wires or (automotive) sheet metal.
At resonance, the antenna looks like 30-something ohms (say about 36),

purely resistive. Below resonance, the resistive part of the feedpoint impedance drops, and the impedance has a series capacitive reactance. But above resonance (in other words, where the antenna is longer than 1/4 wave), the resistive part rises and the series reactance is inductive. The resistive part increases smoothly, till we get to antiresonance at about 1/2 wave long, where the resistance, highly dependent on diameter/length ratio, will be in the vicinity of 1000 ohms. That means that somewhere a bit longer than 1/4 wave resonance, the resistive part must have passed through 50 ohms. If we can find that point, then we need only put some capacitance in series with the feedpoint to cancel out the inductive part of the antenna feedpoint impedance, and we can get a perfect match to 50 ohms!

Now where might we find an installation where there's a ready-made series capacitor? Well, consider thru-glass antennas on cars...if we make the mounting plates the right size to get the right series capacitance, it can exactly cancel the inductance of a 1/4 wave++ radiator. I believe this is quite practical for at least 2 meter installations. See the QST article on thru-glass antennas from about May 93, I think; it doesn't explain _why_ the system works well, but the thoughts here should help you get a better match if you decide to use this system.

And in feeding a home-made vertical above a ground system on HF, a variable cap at the base, in series with the feedline, seems like about the simplest of matching networks.

73, K7ITM

Date: Fri, 4 Mar 1994 19:49:20 GMT
From: ihnp4.ucsd.edu!newshub.sdsu.edu!ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!vixen.cso.uiuc.edu!sdd.hp.com!hp-cv!hp-pcd!hpspkla!depaul@network.ucsd.edu
Subject: Phasing a loop & vertical
To: ham-ant@ucsd.edu

Hello Folks.

I have an elevated vertical (w/elevated radials) & a 560' horizontal loop. I'm finding that there are times when I use the loop and the vertical in differing combinations I'll get a 2 S unit increase (or decrease) in signal strength.

Does anyone know how to vary the energy to the two? A variable L & C network would do the trick, I'm sure...but how do you phase them without mucking up the SWR on the two antennas? Do

I need to buy two RF ammeters to see the RF levels going to both?

Thanks for your help,

Marc DePaul

Date: Fri, 4 Mar 1994 19:44:26 GMT
From: ihnp4.ucsd.edu!newshub.sdsu.edu!ucsnews!sol.ctr.columbia.edu!
newsxfer.itd.umich.edu!gatech!howland.reston.ans.net!torn!nott!cunews!
freenet.carleton.ca!FreeNet.Carleton.CA!ao601@network.ucsd.
Subject: Question on the copper tube J-pole (copper cactus)
To: ham-ant@ucsd.edu

Not so long ago I built a copper J-Pole and had very good results
with it. Mine was a 1/2 wave over a 1/2 wave from a plan in 73' mag
very easy to make, cheap and when made to the correct dimensions it
had a 1.1 to 1 swr. Mine like yours is an omni directional antenna.
One hint is to make sure that your antenna's final location is at least
2 wavelengths away from the nearest metal object if at all possible.
Good luck with it.

    Rick
    VE3IHI

Date: Fri, 4 Mar 94 16:30:48 GMT
From: ihnp4.ucsd.edu!mvb.saic.com!unogate!news.service.uci.edu!usc!
howland.reston.ans.net!pipex!sunic!psinntp!psinntp!newsserver.pixel.kodak.com!
kodak!ornitz@network.ucsd.edu
Subject: What is the center conductor of RG-59
To: ham-ant@ucsd.edu

In article <2l50t8$i5@bones.et.byu.edu> richard@ee.byu.edu
(Richard Christensen) writes:
>I noticed the other day that a magnet is attracted to the ceter conductor of
>RG 59 coax. What is this stuff? It certainly not copper or aluminum.

Remember that RG-59 is now almost a generic term - lots of people make
different RG-59 type cable. In the mil-spec version (RG-59B/U MIL-C-17D),
the center conductor is #23 copper-clad steel with a resistance of 47 ohms
per mile. Variations of RG-59 type cables are often used for CATV and
video use that may have solid copper center conductors or may even be
stranded for flexibility.
     73, Barry WA4VZQ

ornitz@kodak.com

Date: Fri, 4 Mar 1994 21:16:46 GMT
From: ihnp4.ucsd.edu!pacbell.com!sgiblab!sdd.hp.com!hpscit.sc.hp.com!
cupnews0.cup.hp.com!genem@network.ucsd.edu
To: ham-ant@ucsd.edu

References <CLr2KB.92p@cbnewsl.cb.att.com>, <CLzEpK.EGL@eskimo.com>,
<1994Mar3.170330.27389@nosc.mil>.cup.h
Subject : Re: AEA ISOLOOP

: While the antenna was fine, we were : having no fun trying to get the
thing to tune using that awful set of : controls.

Just curious: has anyone out there invested in or used the new
controller? You know, the one that's the same price as the antenna?

Thanks,
Gene
--

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+-------------------------------------------------------------------------+
|Gene Marshall                        \-\-\          email: genem@cup.hp.com |
|Hewlett Packard Co., MS 42UN           |                  Tel: 408/447-5282 |
|Software Svcs & Tech. Division (SST)  | ___o             Fax: 408/447-5039 |
|11000 Wolfe Road                       L^\<._         AA6IY@N6LDL.CA.USA.NA |
|Cupertino, CA 95014                   (_)/ (_)        CompuServe: 75060,260 |
+-------------------------------------------------------------------------+
```

Date: Fri, 04 Mar 1994 12:33:51 -0500
From: titan.ksc.nasa.gov!k4dii.ksc.nasa.gov!user@ames.arpa
To: ham-ant@ucsd.edu

References <henrysCLzps3.4Ez@netcom.com>, <1994Mar1.162350.22173@ke4zv.atl.ga.us>,
<2l5mjn$bd5@inews.intel.com>hua.
Subject : Re: MFJ SWR Analyzers

In article <2l5mjn$bd5@inews.intel.com>, dbraun@scdtintel.com (Doug Braun)
wrote:
> Intuitively, the only way to decrease the SWR is to increase the
> amount of power that is adsorbed by the load resistance. Adding
> reactance in series with the resistance can only decrease the
> voltage that the resistance sees, and reduce the power it is adsorbing.

Doug and others-

I think a subtle point is being missed in this thread: SWR, by basic definition, refers to the characteristic impedance of a given transmission line.

Any given antenna might be adjusted to resonance, meaning the reactive component of its impedance is zero. However, the resulting impedance may not equal that of the transmission line. In this resonant case, SWR is defined as the ratio of the load resistance, to the characteristic impedance of the transmission line. (Or its reciprocal, whichever is equal to, or greater than one.)

You could use a transmission line as a matching network. For example, suppose you had a 100 Ohm resonant antenna. By using a quarter wave length (times the velocity factor) of 72 Ohm co-ax, you could transform the 100 Ohms to 51.84 Ohms, and run 50 Ohm co-ax from that point back to the transmitter. (Product of the two impedances equals the square of the co-ax impedance.)

Not withstanding losses, you would then be transferring maximum power to the load. SWR in the 50 Ohm co-ax is 51.84 divided by 50 = 1.04:1. However, the SWR in the 72 Ohm section of co-ax is still 100 divided by 72 = 1.39:1.

73, Fred, K4DII

End of Ham-Ant Digest V94 #56
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